Major Trauma & Critical Care
Rehabilitation of patients with highly complex needs following critical illness or severe injury

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The National Institute for Health & Care Excellence (NICE) has recently opened consultation on draft Quality Standards for Rehabilitation after Critical Illness¹, to follow on from NICE CG83 Rehabilitation after Critical Illness in 2009. This provides fresh opportunity to examine how rehabilitation provision has evolved over the past 8 years within the critical care setting, whilst taking into account the changing landscape of survivorship following critical illness.

The volume of published research investigating the impact of critical illness on patient’s long-term physical and functional outcomes has expanded steadily since 2009. So too has the number studies exploring rehabilitation and early mobilisation during and following the critical illness, in addition to research developing new critical care-specific mobility and physical assessment scores. However, despite the publication of NICE CG83²; and the more recent Guidelines for Provision of Intensive Care Services (ICS/FICM 2015)³, uptake of these guidelines remains limited⁴,⁵ and many barriers still exist to truly establishing an ‘early rehabilitation’ ethos to care.

Rehabilitation provision during and following critical illness has evolved in different ways around the UK. Some centres utilising the role of a ‘rehabilitation co-ordinator’, while others have explored the impact of Rehabilitation Assistants. Many services have outlined local rehabilitation pathways following critical illness with variability in the provision of follow-up clinics and the availability or accessibility of certain allied health professions. Many services have adopted an ‘early mobilisation’ approach focused on co-ordinating waking from sedation alongside early physical rehabilitation and weaning from mechanical ventilation.

Although several studies have been published outside the UK, beyond the study by McWilliams et al (2015)⁶ there remains a lack of UK specific studies demonstrating the cost impact or benefit of early or intensive rehabilitation across the patient pathway following critical illness. The costing tool developed by NICE following CG83 is now 8 years old, and openly had limitations in its cost modelling (NICE 2009)⁷. Little has been seen in terms of financial investment in critical care services to enhance rehabilitation provision across the patient pathway, and we are yet to see any adjustment to the HRG Critical Care tariff to account for allied health professions and rehabilitation in Critical Care.

Key opinion leaders and recent literature have also raised concerns that a wide variety of clinical outcome tools are used with patients recovering from acute or critical illness. Consequently, it been difficult to draw comparisons and conclusions between studies, or conduct meta-analyses of outcomes following critical illness and/or rehabilitation interventions. The need for a standardised set of outcome measures (core outcomes set) to be reported has been advocated for all undertaking research into patient outcomes following critical illness. Such work is underway both nationally and internationally (Turnbull et al, 2016⁸; Turnbull et al, 2017⁹ [In press]; Major et al, 2016¹⁰).

New questions and challenges also now exist surrounding whom benefits most from rehabilitation, when, how much, how often and what method. In times of increasing NHS financial pressures, there are calls from certain corners whether rehabilitation during and following critical illness needs to be targeted towards patients in whom it will demonstrate the greatest cost efficiency or clinical impact. There are also still many unknowns regarding the recovery trajectories of different patient groups following critical illness, and little work has been published in the UK regarding the socioeconomic impact of critical illness in working age adults and their vocational rehabilitation needs.

Unsurprisingly, the draft Quality Standards for Rehabilitation after Critical Illness (NICE 2017)¹ appear to run in parallel with CG83 with little change from the key principles originally outlined 8 years ago. Which has prompted the thought of what, over the past 8 years, has dramatically changed in the landscape of Critical Care and rehabilitation? An ever-expanding awareness of delirium; it’s detection and management; a growing awareness of the psychological impact of critical illness; increasing survival in the face of more severe illness; new technologies and innovations; and an evolving workforce. The list could go on but for
the purposes of this commentary the focus will centre upon Major Trauma and its interplay with Critical Care. Key questions for consideration will be asked at stages throughout the commentary below.

In 2010, the NHS Clinical Advisory Group for Major Trauma made recommendations to the Department of Health in England calling for the reconfiguration and development of services in Major Trauma Networks to provide coordinated pathways of care. Since 2010, 27 Major Trauma Centres have been established across England, each linked with a number of supporting Trauma Units within the surrounding network. The London Major Trauma network was the first launched in 2010, with networks around the rest of England established from April 2012 (Figure 1).

Figure 1 Major Trauma Centres in England. NHS England 2016
Major Trauma is defined using the Injury Severity Score (ISS), which assigns a value to injuries in different parts of the body and totals them to give a figure representing the severity of injury. An ISS >15 is defined as ‘Major Trauma’, whilst patients with an ISS of 9-15 have moderately severe trauma.

By its very nature, severe injury can result in a complex range of impairments and disabilities, producing a mixture of physical, cognitive, emotional, social and behavioural difficulties. Severe injury may require a prolonged period of hospitalisation, and results in physical, cognitive or psychosocial disability (or a combination of these) that requires specialist rehabilitation, in order to achieve successful reintegration back into the community.

With the reconfiguration of Major Trauma services came a degree of centralised funding; the Major Trauma Best Practice Tariff (BPT) was launched by the Department of Health in 2012. Although funding is attached to individual patients, it is an enhancement to improve care. There are certain elements of care which need to be delivered for the BPT to be paid to Major Trauma Centres as outlined in the NHS England service specification for Major Trauma (NHSE D15, 2013)11.

**Question 1**

Should a Best Practice Tariff exist to facilitate improvements in care for patients with complex disability following a prolonged Critical Care admission complicated by severe critical illness unrelated to trauma, as it does for those following Major Trauma?

In 2012, the British Society of Rehabilitation Medicine published core standards for specialist rehabilitation within the major trauma pathways, including implementation of the specialist rehabilitation prescription (BSRM 2013)12. It has since been highlighted in many quarters that what works for major trauma is equally applicable for patients managed in acute care pathways following any severe disabling illness or injury (BSRM 2014)13. This may include acquired brain, spinal cord injury, stroke, Guillain Barre Syndrome and other polyneuropathies, and other complex conditions requiring prolonged hospitalisation or management on a critical care unit.

It has been acknowledged that patients during or following prolonged periods of critical illness, unrelated to trauma, often have comparable complex physical and cognitive needs requiring rehabilitation from a specialist multi-disciplinary workforce.

**Question 2**

Do patients following a prolonged Critical Care admission complicated by severe critical illness unrelated to trauma have comparable complex, specialist rehabilitation needs as those who admitted following severe Major Trauma?

This BSRM guidance also highlighted that the majority of patients in the acute or trauma care pathway will have an uncomplicated recovery and their rehabilitation needs can be met within their local general rehabilitation services. However, NHS England’s Service specification for Specialised Rehabilitation for patients with Highy Complex needs (NHSE D02, 2013)14 defined three levels of service and four categories of patient need (Figure 2). Patients with more complex needs (category A or B) require specialist rehabilitation (Table 1).
Question 3

Should a system of categorisation of patient need and rehabilitation complexity exist for patients with complex disability following a prolonged Critical Care admission complicated by severe critical illness unrelated to trauma, as it does for those following Major Trauma?

This approach to categorisation of patient need and measurement of rehabilitation complexity is well established in Major Trauma services, as it is innate within the concept of Rehabilitation Prescription and required to receive the Best Practice Tariff.

However, as with Rehabilitation after Critical Illness there is still wide variation in the provision of Major Trauma rehabilitation services throughout England. A recent audit (NCASRI 2016) highlighted the key strengths and weaknesses of current service provision (Figure 3).

Question 4

Would patients with complex or severe disability following a prolonged Critical Care admission complicated by severe critical illness unrelated to trauma benefit from the input of a Consultant in Rehabilitation Medicine?

Question 5

Do barriers currently exist for patients with complex or severe disability following a prolonged Critical Care admission complicated by severe critical illness unrelated to trauma in accessing specialist rehabilitation following discharge from Critical Care?

The BSRM outlined the pathway of recovery following trauma (BSRM 2013) and subsequently developed to a pathway following severe disabling illness or injury (BSRM 2014) (Figures 3). Both of which consider the Critical Care element of patients pathway as ‘acute care’ but not ‘hyper-acute rehabilitation’.

Development of the Major Trauma Networks has instigated a new category of ‘Hyper-acute rehabilitation’ unit. These units are sited within acute care settings and accept patients at a very early stage in the rehabilitation pathway, when they still have unstable medical and surgical needs requiring continued active support from the trauma, neuroscience or acute medical services. They are classified as tertiary specialist rehabilitation for patients with highly complex (Category A) needs and as such are commissioned directly by NHS England. These types of units are still undergoing development and a variety of service models for hyper-acute rehabilitation exist.
Patients have complex or profound disabilities e.g. severe physical, cognitive communicative disabilities or challenging behaviours.

**Patient goals for rehabilitation may include:**
- improved physical, cognitive, social and psychological function/independence in activities in and around the home
- participation in societal roles (e.g. work / parenting / relationships)
- disability management e.g. maintain existing function; manage unwanted behaviours/facilitate adjustment to change
- improved quality of life and living including symptom management, complex care planning, support for family and carers, including neuro-palliative rehabilitation.

Patients have highly complex rehabilitation needs and require specialised facilities and a higher level of input from more skilled staff than provided in the local specialist rehabilitation unit. In particular rehabilitation will usually include one or more of the following:
- intensive, co-ordinated interdisciplinary intervention from 4 or more therapy disciplines, in addition to specialist rehabilitation medical/nursing care in a rehabilitative environment
- medium length to long term rehabilitation programme required to achieve rehabilitation goals – typically 2-4 months, but up to 6 months or more, providing this can be justified by measurable outcomes
- very high intensity staffing ratios e.g. 24 hour 1:1 nurse, individual patient therapy sessions involving 2-3 trained therapists at any one time
- highest level facilities/equipment e.g. bespoke assistive technology/seating systems, orthotics, environmental control systems/computers or communication aids, ventilators
- complex vocational rehabilitation including inter-disciplinary assessment/multi-agency intervention to support return to work, vocational retraining, or withdrawal from work/financial planning, as appropriate.

Patients may also require:
- highly specialist clinical input e.g. for tracheostomy weaning, cognitive and/or behavioural management, low awareness states, or dealing with families in extreme distress
- ongoing investigation / treatment of complex / unstable medical problems in the context of an acute hospital setting
- neuro-psychiatric care including: risk management, treatment under sections of the Mental Health Act
- support for medico-legal matters including mental capacity and consent issues.

Patients are treated in a specialised rehabilitation unit (i.e. a Level 1 unit). Patients may on occasion be treated in a Level 2 unit depending on the availability of expert staff and specialist facilities as well as appropriate staffing ratios.

### Table 1 Categories of patient need and levels of service provision. NHS England D02 2013.

<table>
<thead>
<tr>
<th>Category A (requiring Level 1 specialised services)</th>
<th>Category B (requiring Level 2 services)</th>
<th>Category C</th>
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| Patients have complex or profound disabilities e.g. severe physical, cognitive communicative disabilities or challenging behaviours. **Patient goals for rehabilitation may include:**
- improved physical, cognitive, social and psychological function/independence in activities in and around the home
- participation in societal roles (e.g. work / parenting / relationships)
- disability management e.g. maintain existing function; manage unwanted behaviours/facilitate adjustment to change
- improved quality of life and living including symptom management, complex care planning, support for family and carers, including neuro-palliative rehabilitation. *Patients have complex or profound disabilities e.g. severe physical, cognitive communicative disabilities or challenging behaviours.* **Patient goals for rehabilitation may include:**
- improved physical, cognitive, social and psychological function/independence in activities in and around the home
- participation in societal roles (e.g. work / parenting / relationships)
- disability management e.g. maintain existing function; manage unwanted behaviours/facilitate adjustment to change
- improved quality of life and living including symptom management, complex care planning, support for family and carers, including neuro-palliative rehabilitation. | **Patient goals for rehabilitation may be as for Category A patients.** **Patients require rehabilitation from expert staff in a dedicated rehabilitation unit with appropriate specialist facilities.** **In particular, rehabilitation will usually include one or more of the following:**
- intensive co-ordinated interdisciplinary intervention from 2-4 therapy disciplines in addition to specialist rehabilitation medical/nursing care in a rehabilitative environment
- medium length rehabilitation programme required to achieve rehabilitation goals – typically 1-3 months, but up to a maximum of 6 months, providing this can be justified by measurable outcomes
- special facilities/equipment (e.g. specialist mobility/training aids, orthotics, assistive technology) or interventions (e.g. spasticity management with botulinum toxin or intrathecal baclofen) interventions to support goals such as return to work, or resumption of other extended activities of daily living, e.g. home-making, managing personal finances, etc. | **Patient goals are typically focused on restoration of function/independence and co-ordinated discharge planning with a view to continuing rehabilitation in the community.** **Patients require rehabilitation in the context of their specialist treatment as part of a specific diagnostic group (e.g. stroke).** **Patients may be medically unstable or require specialist medical investigation procedures for the specific condition.** **Patients usually require less intensive rehabilitation intervention from 1-3 therapy disciplines in relatively short rehabilitation programmes (i.e. up to 6 weeks).** **Patients are treated by a local specialist team (i.e. Level 3a service) which may be led by consultants in specialties other than Rehabilitative Medicine (e.g. neurology / stroke medicine) and staffed by therapy and nursing teams with specialist expertise in the target condition.**

<table>
<thead>
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<th>Category D</th>
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<tr>
<td><strong>Patient goals are typically focused on restoration of function/independence and co-ordinated discharge planning with a view to continuing rehabilitation in the community if necessary.</strong> <strong>Patients have a wide range of conditions but are usually medically stable.</strong> <strong>Patients require less intensive rehabilitation intervention from 1-3 therapy disciplines in relatively short rehabilitation programmes (i.e. up to 8 weeks)</strong> <strong>Co-ordinated discharge planning is a key goal for the rehabilitation programme.</strong> <strong>Patients receive an in-patient local non-specialist rehabilitation service (i.e. Level 3b) which is often led by non-medical staff.</strong></td>
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### Figure 3 Key strengths and weaknesses of current Major Trauma Networks. NCASRI 2016.

<table>
<thead>
<tr>
<th>Strengths</th>
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<tr>
<td>Strong network engagement</td>
<td>Insufficient Rehabilitation Medicine consultant input in the MTCs</td>
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<td>Commitment to the development of rehabilitation services</td>
<td>Limited capacity restricting access to specialist rehabilitation beds</td>
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<td>High rates of completion of the Rehabilitation Prescription</td>
<td>Long delays in transfer to rehabilitation, resulting in repatriation to general medical/orthopaedic beds in settings with inadequate skills and resources to manage the patients’ needs</td>
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<td>Growing recognition of the importance of Rehabilitation Medicine consultant input</td>
<td>Lack of dedicated rehabilitation facilities specifically for trauma, including specialist musculoskeletal rehabilitation and cognitive/behavioural units;</td>
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<td>Expanding links with community services</td>
<td>Fragmented pathways after the initial acute care – particularly between the MTCs, Trauma Units and rehabilitation services, resulting in poor continuity of care</td>
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<td>Trauma and Rehabilitation Coordinators were considered invaluable in the patient pathway where these posts existed.</td>
<td>Lack of community-based and vocational rehabilitation</td>
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<td></td>
<td>Lack of engagement from commissioners in certain areas</td>
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**Figures 3 BSRM pathway for patients (a) with trauma and (b) with severe disabling illness or injury**

Since 2012/13, the Payment by Results guidance (DoH/NHS England) has mandated the weighted bed day currency for all specialist (Level 1 and 2) rehabilitation services in collaboration with the UK Rehabilitation Outcomes Collaborative (UKROC). The weighted bed day (WBD) currency is based on serial complexity ratings using the Rehabilitation Complexity Scale in 5 tiers reported through UKROC. The currency delivers a weighted payment model that reimburses the cost of managing highly complex patients, but reduces over time was they become more independent (UKROC, 2016)\(^\text{16}\). This includes ‘hyper-acute rehabilitation’ at a WBD tariff of £259 to £701 depending on patient complexity.

One could argue that ‘hyper-acute’ rehabilitation begins during the Critical Care admission. Patients admitted to a Critical Care unit at a MTC are likely to receive specialised rehabilitation commencing early following admission to Critical Care and this input is likely to be weighted towards patients with the most complex needs. If the ultimate goals are to improve outcome, reduce length of stay and demonstrate cost-efficiency, acknowledging and appropriately remunerating services which commence specialist
rehabilitation earlier in the patient pathway would surely prove to be cost-effective and facilitate a cultural shift in the Critical Care phase of rehabilitation following Major Trauma.

**Question 6**

In Critical Care units based within Major Trauma Centres, for patients with complex disability is the rehabilitation provision offered ‘specialist’ in comparison with that which is offered in ‘hyper-acute’ rehabilitation units?

Recommendations were made in the draft NHS England Service Specification for Adult Care Services (NHSE D16 2013)\(^\text{17}\) to improve functionality and increase the quality of life for patients recovering from a period of critical illness. The key service outcomes stated were the assessment of the rehabilitation needs of all patients within 24 hours of admission to Critical Care and that NICE CG83 eligible care must receive a rehabilitation prescription patients on discharge from critical. These recommendations were further reiterated in the Guidelines for the Provision of Intensive Care Services (ICS/FICM 2015)\(^3\). However, no subsequent guidance was provided detailing standards of rehabilitation prescription.

As part of the development of Major Trauma pathways the Clinical Advisory Group convened a working party to develop standards concerning rehabilitation and its documentation, with standards relating to underlying structure, resources, process and measuring outcomes. The result of this was the development of Rehabilitation Prescription.

The British Society of Rehabilitation Medicine developed standards for the assessment and management of complex patient groups following major trauma, and in addition, following severe disabling illness. Both these documents describe and recommend the use of a specialist rehabilitation prescription. The Specialist Rehabilitation Prescription (BSRM 2014)\(^\text{13}\) expands on the original concept of rehabilitation prescription setting out in more detail the nature of the rehabilitation needs, recording baseline values as part of a core outcomes dataset, and ongoing management recommendations and referrals. Most importantly these standards are aligned with the UKROC dataset.

The initial form of rehabilitation prescription described two separate functions: a rehabilitation (disability-focused) clinical record, to run in parallel or integrate with the traditional medical (disease-focused) clinical record, and a quality improvement process, being a means to monitor the structure, process and outcome of the rehabilitation process in different populations and/or at different times.

From the original proposal, four separate goals for the Rehabilitation Prescription were identified:

- Assessment of both immediate and later needs, and whether those needs could be met
- To engage the patient in the process of rehabilitation and empower the patient’s role within their recovery
- To ensure all information concerning management, especially ongoing needs and long-term goals, is transferred at all transitions of clinical care
- To improve service quality, and enable monitoring of process and outcomes both regionally (network) and nationally

The existing BSRM model of rehabilitation pathway (**Figure 3**) following severe illness or injury signposts the use of specialist rehabilitation prescription at the stage of ‘hyper-acute’ to ‘specialist’ rehabilitation.

Currently, only patients admitted to Critical Care following Major Trauma will receive a specialist Rehabilitation Prescription yet a structured, co-ordinated and functional application of Rehabilitation Prescription use within the Critical Care for patients with complex disability unrelated to trauma may have unrecognised value.
Question 7

What lessons can be learned from Rehabilitation Prescription and specialist Rehabilitation Prescription following Major Trauma and applied to patients with complex or severe disability following a prolonged Critical Care admission complicated by severe critical illness unrelated to trauma?

One of the key strengths of Rehabilitation Prescription in Major Trauma is the alignment with the UKROC dataset and its potential for data capture.

The UK Rehabilitation Outcomes Collaborative (UKROC) provides the national clinical database for specialist rehabilitation services in England. Based at Northwick Park Hospital in London, it was established in 2010 and is overseen by the BSRM. UKROC systematically collates data for patients admitted for in-patient specialist rehabilitation in England. The dataset comprises socio-demographic and process data (e.g. waiting times, discharge destination), as well as clinical information on the complexity of rehabilitation needs, the inputs provided to meet those needs, and outcomes (including functional gain and cost-efficiency) (Figure 4).

Since July 2015, UKROC has been directly commissioned by NHS England to provide the commissioning dataset for specialist rehabilitation services. Registration and submission of the full UKROC dataset is a commissioning requirement for designation, and for eligibility for payment as a Hyper-Acute, Level 1 or 2 specialist rehabilitation services.

The Trauma Audit and Research Network (TARN) database collects patient level data on the acute care phase (including the presence of a Rehabilitation Prescription) throughout England and Wales. However, there is currently no linkage between the TARN and UKROC databases, so there is no way of knowing whether patients who are identified as requiring specialist rehabilitation as they leave the MTCs actually receive it, and if they do, what the outcomes are. A key component of NCASRI will be to link the national clinical databases for acute trauma (TARN) and for specialist rehabilitation (UKROC) to track patients in their journey from the MTCs to the specialist rehabilitation services.

The equivalent within Critical Care is the Case Mix Program lead by the Intensive Care National Audit and Research Centre (ICNARC) which collects data on patient outcomes but currently includes no information concerning rehabilitation or more specific physical, functional, psychological or cognitive outcomes.

**Figure 4** Key measurement tools within the UKROC dataset

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<tr>
<td>Patient Categorisation Tool (PCAT)</td>
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<tr>
<td>Neurological Impairment Set for Trauma (NIS-Trauma)</td>
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<tr>
<td>Rehabilitation Complexity Scale (RCS-E)</td>
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<td>Northwick Park Dependency Score (NPDS)</td>
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<td>Northwick Park Care Needs Assessment (NPCNA)</td>
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<td>Northwick Park Therapy Dependency Assessment (NPTDA)</td>
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<tr>
<td>UK Functional Assessment Measure (UK FIM+FAM)</td>
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<td>Barthel Index (BI)</td>
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<td>Goal Attainment Scale (GAS)</td>
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Services are also required to collect a measure of patient satisfaction. Other optional measures may include measures of cognitive/behavioural function, quality of life tools, community integration and/or workability, as appropriate to the type of programme and intervention.
Of significant importance is the work developed by Professor Lynne Turner-Stokes and team in demonstrating the cost-efficiency of rehabilitation for patients with complex needs, linking tools such as FIM+FAM, NPNS, NPTDA to healthcare costs (Turner-Stokes et al, 2012; Turner-Stokes et al, 2016).

To truly demonstrate the value of rehabilitation following critical illness, in terms of healthcare costs, and demonstrate the case for investment in rehabilitation resources in both acute and primary care, efforts should be made to align clinical outcomes with those already established in commissioning of specialised rehabilitation and Major Trauma.

This would not only enable clinicians and managers to demonstrate the financial impact of recovery following critical illness, but also the positive financial impact of rehabilitation interventions. Additionally, this would enable comparison between patient groups with similar highly complex rehabilitation needs following critical illness, major trauma, or other severe disabling illness. The potential scope and impact of this is extremely significant and would support the case for larger scale national audits of patient outcomes following critical illness.

Question 8

Should a national database exist collating outcomes (similar to the UKROC dataset) of patients with complex or severe disability following a prolonged Critical Care admission complicated by severe critical illness unrelated to trauma?

However, as highlighted in NICE CG83 and numerous clinical studies since, outcomes for domains beyond just physical function and ADL function are required for the patient recovering from critical illness (Figure 5). Valid outcomes have been justified with regards multiple domains such as cognitive function, psychological function such as anxiety and depression, screening for post-traumatic stress, physical function, ADL function, and quality of life.

**Figure 5 Outcome domains following critical illness highlighted from literature**

- Aerobic exercise capacity
- Skeletal muscle strength
- Respiratory muscle strength
- Physical function
- ADL function
- Pain
- Cognitive function
- Psychological function (anxiety/depression)
- Post-traumatic stress
- Sleep function
- Fatigue
- Quality of life

In recent years, numerous tools specific to Critical Care have been developed measuring physical function in the Critical Care setting (Figure 6). All of which are practical, simple to use tools which clinicians may embed easily into clinical practice to enable monitoring of physical function and recovery. However, the validity of these tools in measuring longer-term outcomes, or recovery across the breadth of the recovery pathway from hospital to home is questionable. Additionally, there is neither a consensus on which tool to use, nor have any of the tools in question been linked to healthcare costs.
Specific outcomes developed relevant to Critical Care

- Chelsea Critical Care Physical Assessment Tool (CPAx)
- Manchester Mobility Scale (MMS)
- ICU Mobility Scale (IMS)
- Functional Status Score ICU (FSS-ICU)
- Physical Function in Intensive Care Test (PFIT)
- Medical Research Council Sum Score (MRC Sum Score)

As highlighted towards the beginning of this commentary, work is underway to establish a core outcome set for research in terms of outcomes following critical illness. However, the in the clinical setting core outcome set or minimum dataset would also be of appreciable value.

Question 9

What patient outcomes are important to measure and collect for patients with complex or severe disability following a prolonged Critical Care admission complicated by severe critical illness unrelated to trauma?

Question 10

In the wider national context of outcomes and rehabilitation provision for patients with complex disability following severe illness or injury, what is the potential value of being able to compare patient outcomes between various patient groups (eg. Critical Illness, Major Trauma, Stroke, Neurological Disorders)?

In essence, Major Trauma could ultimately prove to be a catalyst for Critical Care in terms of rehabilitation provision. It may stimulate both wider and closer examination of rehabilitation outcomes in complex patient groups and new insights may surface through comparing outcomes of patients following critical illness with and without trauma.

There are several lessons which may be applied and adapted from the trauma population into the non-trauma critical care population. It is apparent further work is needed to demonstrate the cost-efficiency of rehabilitation provision along the critical care recovery pathway, and the case for financial investment in both acute and follow-up critical care rehabilitation provision requires a new level of dynamism.

Those working in Critical Care settings within MTC’s are likely to develop specialist skills across a wide range of complex patient groups, but this learning must be shared within and between networks to Trauma Units and Critical Care units who do not cater for trauma. The establishment of Operational Delivery Networks in England bringing together Burns, Major Trauma and Adult Critical Care services presents an opportunity to drive forward care for all three areas, in particular, by first reporting on common outcomes and demonstrating the cost-efficiency of specialist rehabilitation in the acute care setting.
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